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Minutes (by Thorsten and Susanne) for QUEST Meeting in Hamburg 8./9.9.2008

\*\*\*\*\* AI = action item \*\*\*\*\*

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---- Publication long-term evaluation ----

We will concentrate on the COPS period.

- How do the COPS IOPs fit into the whole COPS period / into the whole GOP area?
- How typical are they?
- How much of the climatology do they represent?
- How does COPS area differ from the GOP area?
- How did the 2-moment scheme (DWD testsuite) do?
- long-term vs case-study approach
- error correlation between different variables

AI - Stefan will ask DWD (eg Marc Schroeder of CM-SAF) for MSG data of June 2007  
AI - DLR will apply SynPolRad on the COPS period DWD testsuites  
AI - DLR will check SynPolRad (and compare to Mie scattering) (cf review B of Case study publication)  
AI - Thorsten will do his data extraction on the testsuites and provide the data for Stefan

At the beginning of February 2007 in Stefan's comparisons of BTs (COSMO SynSat vs MSG) a significant abrupt decrease in bias occurs. Unfortunately in the operational COSMO models at DWD both the change in the microphysics and the correction of the SynSat zenith angle bug were introduced together. Therefore we are not able to separate the effect of the microphysics change from the effect of the SynSat bug correction and will not investigate this issue now.

---- Ceilometer-vs-model paper? ----

Perhaps small publication on the difficulty of comparing ceilometer observations vs cloud base height model forecasts  
Felix suggests to consider a probabilistic approach: derive a cloud base height pdf from model (considering cloud overlap) and compare to ceilometer-observed cloud-base height pdf

---- Case study paper ----

Status of case study publication (Pfeifer et al):  
We got the reviews and distributed work items among the responsible coauthors.

---- Christoph ----

- results of ceilometer long-term evaluation of COSMO-DE & COSMO-EU
- considerations how to best compare ceilometer observations with model output
- there seems to be a change in the model system around April/May 2008  
AI Stefan: Is it also seen in MSG vs COSMO-DE/COSMO-EU?

---- Stefan ----

Results of long-term evaluation of COSMO-DE 2007:  
In BT 10.8 COSMO-DE has negative bias (too high/cold/many clouds), also neg. Bias in CO2 and in water vapor channel

Results of long-term evaluation of COSMO-EU Parallelroutine (modified convection parameterization) May 2008:  
More and higher clouds in Parallelroutine  
Cloud mask: best in the morning and on days with little cloudiness  
IWV: too difficult, will be skipped

- We suggest to restrict the Parallelroutine comparisons to high clouds
- Axel suggests to upscale on areas of eg 40x40 for the cloud cover evaluation

---- Thorsten ----

- Results of summer 2008 COSMO-DE/COSMO-EU water budget

Axel suggest to keep in mind the reduced raindrop evaporation in the COSMO-DE microphysics (compared to COSMO-EU)

Use Michael's flux-diagnosis tool?

- Area statistics, (final) status
  - AI Thorsten will put a listing on the QUEST or GOP website.
  - Area statistics might be useful especially for stability measures.

---- Axel ----

"Hybrid" microphysics scheme: 2-moment rain, other hydrometeors: single-moment  
COSMO-DE experiments 2007-06-01 to 2007-08-31 (COPS period):  
- Seifert-Beheng 2-moment, polluted  
- Seifert-Beheng 2-moment, clean  
- new hybrid scheme

--> evaporation of raindrops is important, but overall sensitivity quite low (at least on COSMO-DE's mesoscale)

[Remark by Axel: Forecast improvement by multi-moment ice hydrometeors is less likely because ice hydrometeor physics is more complicated than warm-rain microphysics and less well-known.]

On 2008-09-10 in operational COSMO-DE the turbulent length scale was reduced from 500 m to 150 m and the subgrid-cloud assumptions for the turbulence scheme were changed. These changes are supposed to tackle the problem of missed (or too weak) convection in situations with weak large-scale forcing. It is supposed that radiosonde verification will reveal that COSMO-DE becomes less stable in the boundary layer due to these changes. The COPS period cloud physics testsuites and their control run already contain these changes.

- For the fraction skill score (FSS) Axel uses normally 21x21 gridpoints.
- Axel: A good period for convective situations with weak large-scale forcing is mid-May to mid-June 2008.

---- Kwinten ----

- sensitivity studies with ARPS regarding the hail/graupel category
- AI Kwinten will use also the COSMO model with ECMWF forcing for his sensitivity studies and also apply Axel's hybrid (2-moment-rain) scheme
- Kwinten will not carry on with G. Haase's radarsimulator (because it's too difficult to get it running). Neither DWD.

---- Ewan ----

- comparisons AMF Murgtal vs NWP model output
- plans to apply cloudnet target classification also on COPS Supersite R (Rhine Valley, Achern) and Supersite H (Hornisgrinde).
- plans to look at drizzle flux

---- Tim ----

- Jenkinson-Collison weather-type classification
- AI How are these weather types related to other quantities?

---- Felix ----

Felix and Suraj will start with GPS water vapor vs D-PHASE models

---- Next Meeting ----

The next QUEST meeting will be held in Munich in March 2009.